

EDITORIAL ARTICLES.

BACKWARD DISLOCATION OF THE FINGERS UPON THE METACARPUS.

In a recent paper¹ the writer has drawn attention to dislocation of the fingers backward upon the metacarpus, giving as a reason for his paper, the fact that such are frequently very difficult to reduce and their mechanism little known in this country. The paper is prefaced by a record of the cases which were under his treatment, four of the fingers and two of the thumb, which illustrate points in the pathology or treatment of such cases.

CASE I.—Boy, æt. 10 years, recently while playing leap frog fell forward upon his out-stretched hands and displaced the right forefinger backward. Attempts to reduce it failed, the ordinary methods tried again under chloroform failed. A tenotome was then introduced in the back of the hand above the base of the phalanx to the outer side of the extensor tendon and the fibrous and tendinous structures to the outer side of the joint divided. The dislocation was reduced after flexion, circumduction and strong adduction. Recovery complete.

CASE II.—Boy, æt. 8 years. Fell on hand displacing left forefinger seven or eight weeks before. Several unsuccessful attempts had been made to reduce it. Chloroform was given, subcutaneous section of the glenoid ligament, then the internal ligament without improvement. Joint opened with antiseptic precautions and displaced glenoid ligament which adhered to head of metacarpal replaced. The finger was fully flexed a week later, and the result was satisfactory.

CASE III.—Man, æt. 30 years. Displaced little finger from fall of stone on back of hand. In this case earnest efforts had been made to reduce the dislocation but without success. Mr. Battle extended the finger fully, carried it backward, pressed the base against the metacarpal bone and then firmly flexed it. No anæsthetic was required. Complete recovery followed.

CASE IV.—F. æt. 13. Dislocation of forefinger of right hand, ob-

¹Backward Dislocation of the Fingers upon the Metacarpus. By William H Battle, F.R.C.S., Asst. Surgeon to the Royal Free Hospital and to the East London Hospital for Children.—*Lancet*, Dec. 23 and 29, 1888.

scured by swelling which had followed the injury, inflicted 24 hours before; the House Surgeon reduced this in a similar manner under directions without anæsthetic, and full use of the finger was obtained.

CASE V.—Dislocation of the thumb backward in a boy, æt. 12, years, caused by a fall on his hands. Attempts to reduce it with and without anæsthetics failed. The inner tendon of the flexor brevis pollicis was then divided, without success, the outer tendon was then divided, after which the thumb was replaced in position. Result good.

CASE VI.—Dislocation of the thumb backward in a girl æt. 6 years, of five weeks duration, caused by a fall on her hand. “Doctors had been unable to reduce it.” Manipulation under chloroform failed. Tenotomy was then performed of the outer head of the flexor brevis pollicis and any portion of the glenoid ligament which might be lying on the head of the metacarpal bone. Reduction was then effected by means of extension, rotation and adduction. Some difficulty was experienced in overcoming the tendency to ankylosis but she ultimately recovered complete use of the joint.

Pointing out the fact, that although much consideration has not been given in the past to dislocations of the fingers, the subject of dislocations of the thumb has been closely studied; these latter are enumerated in order to see whether there are any likely to cause a similar difficulty in reduction in the case of the metacarpo-phalangeal joints. 1. The action of the two heads of the flexor brevis pollicis in their altered relationship to the metacarpal bone which they embrace, as a button hole the button, the view generally adopted in this country. 2. Constriction of the neck of the bone between the lateral ligaments of the joint. 3. Folding in of the anterior ligament of the joint and the interposition of a sesamoid bone. 4. Contraction of the six muscles inserted into the phalanges of the thumb. 5. The presence of the long flexor tendon between the bones. 6. The cuneiform or clubbed head of the metacarpal bone. 7. The interposition of the sesamoid bones. 8. The constriction of the metacarpal bone by the boundaries of the button-hole slit. 9. The difficulty in applying sufficient force to the thumb. The names of those authorities, supporting these views are given, but it is pointed out that those in recent times who have given the subject most attention, lay great stress on the resistance of the anterior ligament to the reduction, and the opinion

that in the majority of cases this is the offending structure is confirmed. Lawrie, who wrote in 1837, gives a description of the parts after dislocation, which corresponds with this view; he did not, however, appreciate the importance of the condition in the treatment. The paucity of information on the subject of dislocation of the fingers is proved by reference to all the English text books of the day, to American authors, who usually dismiss it in a similar manner. Otis, however, brought the subject specially before the profession in America and in France Farabœuf, Polaillon and Jallaguiet, have thoroughly investigated it, and in Germany, Schuller.

The anatomical arrangement of a joint is considered, that of the first finger being selected, as for example Fig. 1; attention is especially paid to the anterior, palmar, or glenoid ligament. This is very dense, strengthened in the middle line by the flexor tendon, united firmly to the lateral ligaments on each side, but much less strongly to the metacarpal bone, at which point it gives in consequence of sudden violent hyperextension of the joint, the displaced phalanx carrying the ligament with it over the head of the metacarpal bone.

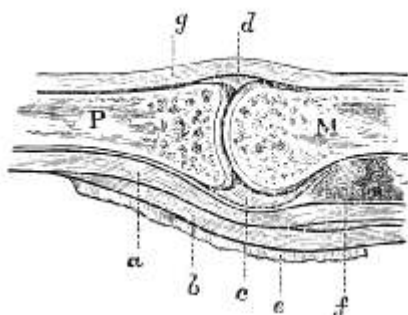


FIG. 1.—SECTION THROUGH METACARPO-PHALANGEAL JOINT (after Henle).

M, Head of metacarpal bone. P, Base of first phalanx. *a*, Tendon of flexor prof. digitorum. *b*, Tendon of flexor sublimis digitorum. *c*, Glenoid ligament. *d*, Dorsal ligament (absent, according to Gray). *e*, Vaginal ligament. *f*, Interosseous ligament. *g*, Tendon of extensor communis digitorum.

Dr. Otis in his experiments (undertaken because of failure to reduce two dislocations of the first finger) found that the anterior ligament always gave at the metacarpal attachment in the case of the fingers; in the thumb this varied somewhat, a difference being caused by the sesamoid bones. The observations of the author confirm this. At the same time it has been found that the lateral ligaments give to an

extent which varies from complete rupture to the yielding of some of the anterior fibres, so it is probable that the part which they play, if any, is a subordinate one. Farabœuf divided these backward displacements into three varieties. 1. Simple incomplete dislocation, the phalanx not having completely left the head of the metacarpal. 2. Simple complete, in which the phalanx has become displaced on the dorsum of the metacarpal bone and with its anterior edge on the head of the metacarpal. 3. Complex, in which the phalanx occupies a similar position, but the glenoid ligament with its sesamoid has become turned, and is interposed between the two bones, rendering the dislocation irreducible, (illustrated by Fig. 2), a state of the parts similar to that described by Lawrie.

The third variety nearly always results from ill-judged and violent attempts to reduce the simple complete form which always precedes it. Jalaguier was called upon to treat a complex dislocation of the index finger which resisted attempts by manipulation. After experiments on the dead subject, he came to the conclusion that the glenoid

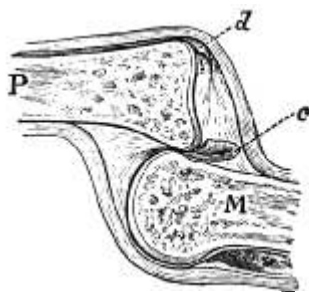


FIG. 2.—DIAGRAM TO ILLUSTRATE POSITION OF GLENOID LIGAMENT. ANTERO-POSTERIOR SECTION.

M, Metacarpal bone. P, Phalanx. c, Glenoid ligament displaced and turned. d, Ruptured dorsal ligament, occasionally present.

ligament was the retaining structure and successfully reduced the dislocation by dividing it subcutaneously on the dorsum of the metacarpal bone. Reference is made to cases where it has been found in this country, by Symonds, Croft, Davies-Colley. The diagnosis of these dislocations is usually easy. Agnew, however, states that he seen instances where the displacement has not been diagnosed. This part of the subject is dwelt upon briefly, the comparison of hands, deformity, uselessness of the fingers, shortening, projection of head of metacarpal in the palm, etc. Sometimes the phalanx is masked by the presence of inflammatory swelling on the dorsum of the hand due to the injury. Two conditions resembling forward displacement are mentioned; these are very rare. 1. Union of

epiphysis of metacarpal after forward displacement with the finger. 2. Union at the angle of the first phalanges in a case in which there had been fracture and displacement forward of the finger; just below the superior articular surface.

The treatment recommended and proved of value should be undertaken in the following way. 1. Manipulation, without anæsthetic, in a definite manner without violence by the dorsiflexion method. Tilt the displaced phalanx up until it stands upon its articular end, place both forefingers so as to hold it in that position and at the same time press against the distal extremity of the metacarpal bone. Under firm pressure with the thumb against the base of the dislocated phalanx, slide it into place, a proceeding generally accomplished with ease. In complex cases it is advisable to carry the base of the phalanx backward along the dorsal surface of the metacarpal bone, with traction on the digit, in order to try and get the ligament with its sesamoid bone more fully in front of the anterior margin of the articular surface of the phalanx before flexion. 2. Administration of anæsthetic and renewed attempts by manipulation, on failure of which, subcutaneous division of glenoid ligament on the dorsum of the metacarpal, in the middle line to avoid the sesamoid bones. It is pointed out that reduction has been effected by division of the lateral structures of the joint, but it is suggested that this has acted by freeing the lateral attachments of the glenoid ligament, and so placing it in a more lax condition. (See case 1). 3. In the thumb, lateral section also divides the tendon of the flexor brevis pollicis which is looked upon as a retaining structure by some; in these dislocations this method should next be tried. (See case 5). 4. Incision of joint under antiseptic precautions, reposition of ligament (See case 2), or flexor tendon. 5. Excision of head of metacarpal bone after severe compound fracture or ankylosis of joint especially in the case of the thumb, but an attempt to reduce the dislocation and preserve the joint by means of antiseptic applications, followed by passive movement usually to be undertaken. Great stress is laid upon the necessity of passive movement, undertaken at an early date, to prevent ankylosis.

We have not attempted to give the references or names of the authorities quoted. The paper is the result of a careful consideration of

these, and no statement is advanced without a reference to the authority supporting it.

WILLIAM H. BATTLE.

RECENT CONTRIBUTIONS TO PULMONARY SURGERY.

In some recent Russian papers the surgery of the lungs has been discussed. Dr. Zakharevitch, of Kharkov, has placed on record an account of a series of experiments with reference to the extirpation of this viscus¹, which are of much practical interest. In connection with this subject the case of pneumonotomy² under the care of Professor Opensovsky may also be considered.

In order to verify Glueck's and Hansschmid's statements as well as to elaborate a well-working plan for pneumonectomy in man, Dr. Zakharevitch has made 13 experiments on rabbits, 11 on dogs, and 9 on human cadavera. The following strictly aseptic and probably bloodless operation was performed in every one of the animals. Having made a subperiosteal resection of from 1 to 4 ribs, according to the size of the portion removed, he most cautiously dragged the latter out of the wound, tied its root with silk, cut away the part above the ligature, powdered the string with iodoform, returned it into the thoracic cavity, stitched the thoracic wound most hermetically, and applied a Listerian dressing. As a rule, the experiment was followed by a *post mortem* examination, the surviving animals being killed at varying intervals after the operation. The following points of considerable practical interest deserve to be placed before our readers.

A. Results of the operation: 1. Of 13 operations in 9 rabbits, only 2 proved fatal, death following immediately after opening the thoracic cavity. In one of the two, the whole lower lobe of the opposite lung was found to be infiltrated with tubercle. The other case refers to a rabbit in which the extirpation of the left upper lobe had been successfully performed a month before the second operation on the

¹An Experimental Contribution to Pulmonary Surgery. By Dr. V. M. ZAKHAREVITCH (Kharkov, Russia). *Transactions of the Kharkov Medical Society for 1887*, vol. ii.

²Pneumonotomy for Pulmonary Abscess and Gangrene. By Professor F. M. OPENSOVSKY (Dorpat, Russia). *Vratch*, No. 38, 1888.